Guidelines for Cover Crop and Grass Establishment on Sandy Sites Associated with Conservation Reserve Enhancement Program Acres

CONSIDERATIONS IN PLANNING

Planners in each respective county have the responsibility to identify and address resource concerns and to work with producers within the parameters of Natural Resources Conservation Service (NRCS) conservation practice (CP) standards and construction specifications. Planners have the flexibility within construction specifications to schedule the establishment of cover crops and perennial vegetation by stacking cover crops over multiple years based on the consideration of climatic conditions, field conditions, irrigation capabilities, and producer objectives.

Field evaluations will be performed to determine if hardpans or other plant establishment restrictions are present. Field offices (FOs) are encouraged to utilize area resource soil scientists to help determine the presence, extent, and depth of hardpans.

It remains unclear how effective tillage (ripping) would be in breaking up the hardpan. If tillage is prescribed, it should be completed when site conditions are dry to gain maximum benefits from soil fracturing. It is also recommended that adequate cover be present on the area being tilled. Extreme caution is needed when considering tillage on these sites due to the potential for wind erosion. When discussing tillage, consider tillage only on part of the field or in strips. Also, consider the type of tillage tool and spacing of shanks to minimize residue disturbance. Application of a cover crop and irrigation water, if available, is suggested immediately following tillage. In those instances where irrigation water is not available, existing cover and planting additional cover crops is especially important.

With the application of irrigation water, hardpan layers become permeable where plant roots can penetrate; improving the potential for plant survival. When determining the irrigation application schedule, consider that it will take approximately 13.3 days with a properly nozzled pivot system to apply 1 inch of water using a 200 gallon–per–minute well. Approximately 1.2 inches is needed to fill the top 10 inches of choppy sands soil to field capacity and would take 16 days to apply the water. For the most effective use of irrigation water, consider reducing the acreage being watered. As part of vegetation establishment, planners may need to look at plugging nozzles (donut watering) or watering half circle with multiple-year cover applications. Nontraditional watering periods such as during the fall or early spring may need to be considered to increase effectiveness of irrigation. If a uniform application of water over the field is a concern and current well production decline is significant, it may be necessary to re-nozzle the center pivot irrigation system.

The Farm Service Agency (FSA) is to be included in nontraditional practice application methods to ensure that the producer remains eligible for financial assistance.

CP 340, COVER CROP:
Adequate cover crops shall provide an average of 80 percent ground cover. Multiple cover crops or back-to-back (stacking) cover crops may be necessary to achieve desired ground cover. An example of stacking is planting a spring cover crop, followed by a summer cover crop, followed by a fall planted cover crop, all within one year. Areas of the field with inadequate cover established (small areas or hilltops) shall be mulched to provide adequate cover for stand establishment. Mulch will be anchored to the soil (i.e., disc) to ensure it does not move prematurely. If manure is used, a minimum of 30 tons per acre will be applied.

Soil amendments should be applied according to a current soil test.

Verify that previously applied pesticides will not present a residual carryover issue for the subsequent cover crop and/or permanent seeding (see Kansas Conservation Reserve Program [CRP] Technical Guidance Number 74).

Forage sorghum cover crops will be planted on 10– to 12–inch row spacing at a rate of 10 to 12 pounds per acre. These cover crops should be planted no later than May 31. Apply supplemental irrigation as necessary to ensure adequate growth of the cover. All varieties of sorghum have a recommended minimum net irrigation requirement of 12 inches for the months of June, July, and August.

Due to the conditions of most Conservation Reserve Enhancement Program (CREP) sites, a fall and/or spring multispecies cover crop mix should be considered. Diversity within the cover crop is important.

Recommendations for multispecies cover crops include:

- Mix should contain 5 species or more; of which 1 is a legume
- Have a carbon/nitrogen ratio of > 35
- Contain 1,000,000 or more seeds per acre
- Cover crop goal is 80 to 100 percent ground cover (it may require multiple cover crops or stacking of cover crops to meet desired minimum ground cover).

Example cover crop mixes:

Approximate carbon/nitrogen ratio: 43

Oats:	25.0 lbs per acre	
Lentils:	5.0 lbs per acre	
Rapeseed:	2.0 lbs per acre	
Flax:	5.0 lbs per acre	
Safflower:	5.0 lbs per acre	
Total:	42.0 lbs per acre	1,275,000 seeds per acre

Approximate carbon/nitrogen ratio: 37

Oats:	15.0 lbs per acre	
Spring barley:	15.0 lbs per acre	
Lentils:	3.0 lbs per acre	
Clover—yellow:	1.0 lb per acre	
Spring forage peas:	15.0 lbs per acre	
Rapeseed:	2.0 lbs per acre	
Nitro radish:	0.5 lbs per acre	
Flax:	5.0 lbs per acre	
Safflower:	5.0 lbs per acre	
Total:	62.0 lbs per acre	1,600,500 seeds per acre

Approximate carbon/nitrogen ratio: 35

Soybean Non genetically modified organisms (GMO):	1.0 lbs per acre	
Cowpeas:	3.0 lbs per acre	
Clover-Crimson:	1.0 lbs per acre	
Sudangrass:	9.0 lbs per acre	
Pearl millet:	5.0 lbs per acre	
Rapeseed:	1.0 lbs per acre	
Sunflower:	2.0 lbs per acre	
Flax:	1.0 lbs per acre	
Total:	23.0 lbs per acre	1,071,300 seeds per acre

Area resource staff assistance should be utilized in developing additional cover crop mixes.

Form KS-ECS-4, Grass Seeding, will be used to document cover crop mix, planting date, fertilizer requirements, and other relative information.

All cover crops will be field reviewed and approved by NRCS personnel to ensure adequate cover is present prior to seeding an approved permanent vegetative mixture.

CP 550, RANGE PLANTING:

Seed Mixes

Seed mixes will be developed consisting of 8 or more species of which 2 will be cool-season species. In addition to these 8 species, a minimum of 1 pound per acre of forb/shrubs will be added to the mix. Forb/shrub mix will contain a minimum of 1 shrub and 2 forbs. Refer to Table 2, Construction Specification 550, Range Planting, for adapted forb species.

Use the following table to develop seed mixes. Species in the table have been approved for CREP seed mixes. Use of additional species not listed in the table or

practice specifications may be requested by submitting a variance through proper channels.

Species	Full Seeding Rate Pure Live Seed (PLS) (pounds per acre)	Percent of Mix	PLS (pounds per acre)
Sand bluestem	6.0	0-15%	
Little bluestem	4.0	10-35%	
Switchgrass	3.0	0-20%	
Sideoats grama	6.0	5-30%	
Indiangrass	6.0	0-15%	
Sand lovegrass	2.0	0-25%	
Blue grama	2.0	0-30%	
Buffalograss	5.0	0-15%	
Prairie sandreed	4.0	0-20%	
Giant sandreed	4.0	0-20%	
Sand dropseed	0.2	5-20%	
Indian ricegrass	7.0	0-10%	
Needle and thread	10.0	5-15%	
Alkali sacaton	0.7	0-10%	
Western wheatgrass	10.0	0-15%	
Streambank wheatgrass	8.0	0-10%	
Shrubs:			
Fourwing saltbush			0.1-0.2
Winterfat			0.05-0.1
Sand sagebrush			0-0.1

Example CREP mix:

Species	Percent of mix
Sand bluestem	5
Little bluestem	15
Sideoats grama	5
Sand lovegrass	20
Blue grama	5
Buffalograss	5
Sand dropseed	10
Indian ricegrass	5
Needle and thread	5
Alkali sacaton	10
Western wheatgrass	10
Streambank wheatgrass	5

Forb/Shrubs	
Alfalfa	0.1
Annual sunflower	0.1
White sage (Louisiana sage)	0.1
Indian blanket	0.1
Showy partridge pea	0.1
Maximilian sunflower	0.1
Upright prairie coneflower	0.1
Fourwing saltbush	0.2
Winterfat	0.1

Grass seed shall be no-tilled into existing cover with an approved no-till drill that will ensure proper seed placement and good seed–to-soil contact. Consider planting grass early in the approved seeding period of December 1 through May 15 to take advantage of winter and spring precipitation.

Form KS-ECS-4 will be used to document grass seeding mix, planting date and other relative information.

Monitoring and Irrigation

Monitor grass stands for adequate moisture and weed competition throughout the growing season. On-site field reviews will be needed to determine available soil moisture and irrigation needs. Adequate soil moisture for germination through July and August of the planting year is critical to allow for successful seedling establishment. Supplemental irrigation shall be applied as necessary to ensure germination and establishment. The amount and frequency of irrigation should be similar to newly seeded alfalfa. It is recommended irrigation begin after the last typical frost occurs in the spring. Supplemental irrigation should be applied frequently and in short duration until germination occurs. After seedling emergence, irrigation should be applied longer in duration to perpetuate deeper root development and softening hardpan.

Weed Control

Approved weed control methods should be utilized during the grass establishment period. If pre-emergent herbicides are used, weeds may not become a problem early in the growing season. Mowing the year of seeding should only be completed where necessary to open up the canopy. Mowing may promote growth of undesirable weeds. Weeds should be mowed when they reach a height of 10– to 12–inches. Mowing should be above the height of seeded grasses. Prevention of blowing weeds will need to be considered, and mowing after frost may be necessary to prevent blowing concerns. Maintenance of cover on all acres is critical to prevent soil movement. Weed cover is better than no protection on these sites.

The use of herbicides for weed control during grass establishment is discouraged due to forbs and shrubs in the planting. Herbicides can be used to spot treat noxious weeds.

FIELD REVIEWS

CREP contracts are not typical of average CRP contracts—CREP will need more frequent field reviews throughout the growing season. Field reviews should be completed with the participant. Written status reviews will be completed at the end of the growing season and signed by the participant.

Documentation of the planting conditions, recommendations and actions taken is very important. Direct correspondence along with Form NRCS-CPA-6, Conservation Assistance Notes, will be placed in the case file.

STAND ESTABLISHMENT

Each stand will be evaluated by the NRCS to determine successful establishment. It is recommended that the NRCS include FSA and the participant in the establishment review.

For sandy sites on CREP acres, a stand will be determined successfully established if the stand has on average, a minimum plant density of 0.5 perennial plants per standard range clipping frame (24 inch x 11.5 inch) across the area.